

INTERRACIAL INTERACTIONS COMPREHENSIVE REPORT

by

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Abstract

People interact with each other on a regular basis and is very common in today's society. Even though society is more accepting of all people, past studies indicate that interracial interactions have a negative effect on people's cognitive processes, namely executive functioning. This work examined the consequences of interracial interactions on a specific typing of executive functioning-flexible thinking. It was hypothesized that interracial interactions compared to same-race interactions (e., minority-minority, or White-White interactions) will deplete flexible thinking. Twenty participants diverse in age, gender, and race were video recorded while having a brief interaction with either a minority or White experimenter. After the interaction, participants completed a measure of flexible thinking known as the Wisconsin Sorting Task. Results shows that participants in interracial interactions produced more errors and had longer response times on the Wisconsin Sorting Task compared to same-race interactions, though these results were statistically significant. Implications for future research is discussed.

Interracial interactions are commonplace throughout history and in today's society. Interracial interactions can and have taken place in schools, workplaces, institutions, restaurants, and other places. However, researchers have found that interracial contact is stressful and causes depletions in executive functioning (Richeson and Trawalter, 2009). There are three types of executive functioning which are working memory, executive control, and flexible thinking. Working memory is short term recollection of in the moment linguistics and perception. Inhibitory (executive) control is the ability to complete a goal using higher cognitive processes. Flexible thinking is the capability to think outside the normal parameters of thought. The next section reviews the literature on the consequences of interracial interactions.

Interracial Interactions and Executive Functioning

Previous studies have researched differences in executive functioning following interracial interactions. For example, Richeson and Trawalter (2005) sought to investigate the role self-regulation (the process of restraining behavior) has on intergroup relations. In particular, the researchers tested to see whether increasing self-regulating demands, which is the process a person goes through to restrain themselves and interracial interaction would negatively affect inhibitory task performance.

For study one, the researchers investigated two hypotheses. The first hypothesis was that participants would demonstrate greater impairment on the Stroop task after interracial compared with same-race, dyadic interactions (Richeson and Trawalter 2005). The second hypothesis was that participants who received false prejudice feedback before an interracial interaction were expected to have greater impairment on the Stroop task compared to participants who received false performance feedback (Richeson and Trawalter 2005). For study one, there were White American undergraduates consisting of females, males, and non-binary. The participants were

sent to either a White or Black confederate to complete the Implicit Association Test (IAT). After completing the IAT, participants in the false prejudice feedback condition were told: “Several studies have used this task to study racial bias. These studies show that most people are more prejudiced than they think they are”. Those in the false feedback condition were not told this information. In the results for study one, the first hypothesis was confirmed as there was greater Stroop interference or worse task performance during the Black confederate interaction in comparison to White confederate interactions. The second hypothesis was confirmed as there was increased impairment when doing the Stroop task among participants who received prejudice feedback in comparison to performance feedback, especially during an interracial interaction.

In study two, experimenters were looking to investigate the findings in study one further by reducing the amount of dysfunction during interactions. The purpose of study two was to see if changing how study one was carried out would affect the results. There were two experimental conditions, a script condition, in which participants were provided a script during the interaction and no script condition, where participants were not provided a script. For hypothesis one, participants in the no-script condition would reveal greater impairment on the Stroop task after an interracial, compared with same-race, interaction. The results for study two were also significant as participants who had a script had much lower impairment than participants with no script. Participants also had increased impairment when they were assigned to different race confederates than participants who were assigned same-race confederates.

The purpose of study three was to manipulate the self-regulatory demands by decreasing regulation of anxious arousal (the anxiety that a person gets from restricting behavior). This study was very similar to the previous studies. The third study hypothesized that misattributing

anxiety (anxiety that was incorrectly attributed) would alleviate the need to engage in self-regulation. Like study one, participants had an interaction where they gave their opinions on several topics for eight minutes and then completed the Stroop task. Participants assigned to the misattribution condition were told: "Several previous participants have found that this room makes them anxious because of the one-way mirror and the confined feel of the room". The participants in the control group on the other hand were not told any information about the room. The hypothesis was confirmed as the misattributing anxiety did alleviate the need to engage in self-regulation and thus performed better on the Stroop after an interracial interaction compared to those in the control condition. Overall, the key implication of the results is that participants self-regulated more when interacting with different race confederates rather than same-race confederates. These studies help the field of psychology by enabling a better understanding of how interracial interactions impact executive control.

These previous studies have found that White individuals are more likely have executive functioning depletion via the Stroop task after interracial contact. A recent study investigated whether Black individuals will also be depleted of executive functions after interracial contact (Richeson and Trawalter, 2005). They hypothesized that they would perform worse on the Stroop task after an interracial interaction, especially among those who held implicit racial bias. To examine these ideas, Black participants first met up with a White experimenter who escorted them into the testing room to complete the IAT. After the participants took the IAT, the participants were escorted to meet with a Black or White confederate to have an interaction, and then completed the Stroop task. The results showed greater Stroop interference among those high in implicit bias after interacting with a White confederate, but not with a Black confederate.

In a similar study (Richeson & Shelton, 2003), White undergraduate students completed a measure of implicit bias and then proceeded to have a videotaped interview with either a White or Black experimenter according to the condition. The interview included controversial topics on the college's fraternity system and racial profiling. The experimenter did not provide any input during the interaction. Following the interaction, participants completed the Stroop task. It was found that participants experienced greater impairment on the Stroop task, indicating greater cognitive impairment, when interacting with a Black partner in comparison to those who interacted with a White partner. This effect was moderated by the participants' level of implicit bias, but only when participants interacted with a Black partner, not with a White partner (Richeson & Shelton, 2003). These results provide further evidence that interracial interactions cause executive functioning depletion in White individuals.

Other studies have examined how interracial interactions impact both Black and White participants and considered ways that might alleviate the stress of the interactions. Babbitt and Sommers (2011), for example, examined the contexts under which executive functioning depletion is increased or decreased in both Black and White participants. In particular, the researchers were interested in seeing how shifting the context or nature of interactions to one that is task-focused would affect executive functioning when compared to interactions that are more social-focused. They predicted that both White and Black participants would experience more positive outcomes, or less resource depletion, when instructed to focus on completing problem solving tasks with a person of a different race than the pairs that were instructed to focus on the social aspect of the interactions. Participants contained interracial dyads that were either in the social-focus, task-focus, or control focus condition. Those in the social-focus condition were told the study examined social interaction, that their tasks were icebreakers, and that they would later

have to answer questions about their partner. Those in the task-focus condition were told the study was on performance, to focus on getting as many correct answers as possible, and that the top scoring dyad would receive a monetary bonus. Those in the control condition were only told to work on tasks together. The tasks included both race-neutral and race-relevant material and utilized creative, logical, and social skills. Following these interactions, both Black and White participants completed the Stroop task and took the IAT. The results revealed that Black participants experienced less cognitive impairment on the Stroop task in the task-focused condition when compared to the social-focused condition. While White participants showed a similar pattern of results, the difference between the two conditions were not statistically significant. This could potentially show that for at least Black individuals, focusing on a task rather than the social element of an interracial interaction may alleviate some stress of the interaction and cause less cognitive impairment. The same could potentially be the case for White individuals, but more research is necessary in order to make this claim.

The Present Study

In summary, previous research suggests that interactions with individuals from different social groups (i.e., intergroup interactions) can be stressful. Interracial interactions (e.g., between a White individual and a Black individual) can lead to increases in intergroup anxiety and a decrease in executive functioning compared to same-race interactions. While previous work has found that inhibitory control is impaired after interracial interactions, the effects of interracial interactions on cognitive flexibility have not been investigated. Cognitive flexibility, also called flexible thinking, refers to the ability to think about something in more than one way. The present study will examine whether interracial interactions affect flexible thinking. It is

hypothesized that interracial interactions will lead to greater impairment, (i.e., worse performance) on a flexible thinking task in comparison to same-race interactions.

Methods

Data collected during the summer 2022 was utilized. Materials for this study included one measure of flexible thinking. Participants also completed a demographic questionnaire.

Participants

Twenty-three participants were recruited from around campus. Out of 23 participants, 8 were male, 11 were female, and the rest of participants did not identify their gender. Participants ages ranged from, 18-66, but most were 18-26 years old. Thirteen participants identified as White, two were Asian, and 4 were Hispanic/Latinx. Participants also responded to other demographic questions related to their racial/ethnic upbringing. For example, regarding the statement: “On a scale from 1-10, rate the diversity of the community you grew up in,” participants’ average score was 6/7 out of 10. Similarly, most participants stated that they interacted with White and Hispanic/Latinx people the most. \

Materials & Measures

Flexible Thinking

The Wisconsin sorting task is a well-known cognitive test that is designed to gauge the amount of mental flexibility one has (Grant & Berg, 1948). This is done by presenting the participant on a computer screen a set of cards that have a determined number of shapes and colors for each

card. For example, one card may have 3 yellow stars, and another may have 4 blue circles. The participant must figure out the rules presented to them by the card they possess directly in front of them in order to properly sort them in their respective piles. For example, if the rule is to sort by color, and you have 1 blue triangle on your card, you must match it with the card that has 4 blue circles. A greater number of errors and a longer reaction time indicates lower levels of flexible thinking, while fewer errors and shorter reaction time indicates higher levels of flexible thinking.

Procedures

Participants that agreed to participate, came Dr. Perkins lab and were greeted by a research assistant and given a consent form that described the purpose of the study. Next, the research assistant left the participant alone for a few minutes. After about 3-5 minutes either a Latinx or White research assistant (RA) enters the lab and has a scripted video recorded interaction. In particular, the research assistant first tells the participant: *“I will ask them a series of questions, but there are no right or wrong answer and that we are just interested in their thoughts and opinions.”* The research assistant starts the discussion by asking questions about everyday niceties and then move to questions about contemporary societal issues such as: What are some of your hobbies? What plans do you have for the future? What’s your favorite food? Should high schoolers be taught cultural studies? Should there be more than one national language? The discussion shifts a bit and the final three questions discussed with participants were more racially charged: Is it easy for minorities to make a living? Does white privilege exist? Are some groups discriminated against more than others? The RA’s prepared a scripted response to respond to participants answers to these questions. Once the interaction is over, the

first research assistant returns to the lab and has the participant complete the Wisconsin sorting Task. The participant is then automatically redirected to complete demographic questions, is debriefed, and compensated with a 15\$ Amazon gift card.

Results

The first research question asked was what affect interracial interactions had on flexible thinking. It was hypothesized that interracial interactions would lead to greater impairment on the Wisconsin Sorting Task via average response times and average errors. Using a one-way ANOVA, four groups of participant interactions were compared- Group 1: Minority participant and Minority RA, Group 2: White participant and White RA, Group 3: Minority participant and White RA, Group 4: White participant and Minority RA.

In terms of the mean average response time (sec), participants in the Minority participant and Minority RA interaction had an average response time of 1.712 seconds (SD=0.276). Participants in the White participant and White RA interaction group had an average response time of 1.507 seconds (SD=0.350). Participants in the Minority participant and White RA interaction group had an average response time of 2.395 seconds (SD=0.779). Participants in the White participant and Minority RA interaction group had an average response time of 1.843 seconds (SD=0.446). In general, interracial interaction groups had slower response times and this effect was marginally statistically significant, $F(3, 23) = 2.649, p = 0.08$.

Regarding the flexible thinking results in terms of percent error, participants in the Minority participant and Minority RA had an average percent error of 21.667 (SD=5.83). Participants in the White participant and White RA interaction group had an average percent

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error of 25.00 (SD=9.280). Participants in the Minority participant and White RA interaction group an average percent error of 23.333 (SD=18.856). Participants in the White participant and Minority RA interaction group had an average percent error of 25.667(SD= 10.247). In general, no clear pattern emerged in terms of interaction group and was not statistically significant, $F(3, 23) = 16.38, p = 0.91$.

Discussion

This study investigated whether interracial interactions had an effect on flexible thinking. Participants were assigned to four conditions groups: which were Minority participant and White researcher, White participant and Minority researcher, White participant and White researcher, and Minority participant and Minority researcher. Participants were tasked with completing the Wisconsin Sorting Task (Grant & Berg, 1948) to find whether the interactions would affect flexible thinking. They would then answer questions based on shapes and colors for the Wisconsin sorting task. The survey was used to determine the level flexible thinking by using average response time (sec) and the percent error. It was hypothesized that participants who were apart of the interracial groups would have affected their flexible thinking during the Wisconsin sorting task. The researchers found some support for hypothesis.

Implications

The relationship between interracial interactions was explored. Unlike the many other types of executive processing, the researchers in this experiment used flexible thinking. The result of the current study implies that flexible thinking does not have the same effect that executive control and working memory when it comes to be affected in interracial interactions. The results contrast the previous research by (Richeson and Trawalter 2005) in which interracial

interactions negatively impacted executive functioning. The findings suggest that neither group had enough of a difference to have been impacted flexible thinking.

Despite these non-significant findings, interracial interactions are common in society and are vital for society to thrive. The findings in this study can be used to influence how workplaces look at interracial interactions. Results can also be used to influence how students and employees perceive interracial interactions in their work environments. Different types of thinking and their effect on interracial interactions has not yet been fully researched and more research needs to be conducted. This suggests that there are many aspects to consider when it comes to interracial interactions and executive functioning.

Study Strengths and Limitations

The study conducted had many strengths. The first strength of this study was survey design; the fact that the study was in-person which allowed the experiment to be directly influenced. Participants were able to meet up with the experimenter fairly easily and were randomized into four types of interactions. They able to complete the study at any time within the given time. The participants went to a lab which allowed the researcher to influence the experiment with more ease. The samples gathered helped greatly with the experiment as they were detailed and helped with answering the questions the researchers had. Another strength that the study had was the use of The Wisconsin sorting task for the basis of the experiment. The Wisconsin sorting task has been tested and used in the past to measure flexible thinking which makes it reliable. JASP helped with organizing the data in a concise and orderly fashion.

Limitations were present during this research experiment. A limitation of this study is the number of participants who actually participated in the experiment. There was a fairly small pool

of participants to work from; first there were twenty-two participants. Out of the twenty-two participants, three of the participants data was not fully recovered. The smaller pool of participants made it challenging to make fully accurate conclusions. An additional limitation of this study is that the study only tested for flexible thinking. If the experiment covered more types of thinking, the researchers may have got a wider perspective on interracial interactions. A limitation found with this study were the studies used to compare to this study. The other studies were limited on their scope of information, and it was a challenge to find studies with similar goals to this study. This made it difficult to craft up comparisons between this study and other studies which was necessary for this experiment.

The broader implications of this research has widened the scope of interracial interactions in the workplace. What the findings tell us about interracial interactions in the workplace will make day to day work more challenging. The current research has confirmed the conclusions made in previous research. The challenge of interracial interactions is a more complex issue that cannot be solved with a simple answer. Further research needs to be conducted in this field to help tackle interracial interactions in the real world.

Future Research Directions

There has been much research within the subject of interracial interactions and flexible thinking. What had come from this experiment has yield interesting results. Further discussion can be made if research looked into how other racial groups besides white and black participants and experimenters. If future researchers decided to use a controlled environment that limits outside variables, that would allow researchers maximum control over outside variables. Having the experiment in a more controlled environment would allow for the researchers to have an increased amount of control over the results. Another beneficial factor that can be used for future

experiments is if the experimenters are able to get a wider pool of participants, they will have a better understanding of the affect that interracial interactions have on flexible thinking. If future researchers decided that they preferred to look over another aspect interracial interactions, there would be plenty of room for further studies in those regards.

Flexible thinking can be affected by a multitude of factors in an environment.

Researchers can potentially add more variables to the experiment can affect the results in a way that can spark discussion. Another aspect that researchers can look into is that different tasks can be looked into for researching flexible thinking. A potential research direction that could be taken would be to investigate the speed of completing Wisconsin sorting tasks then compare it to performance on tasks. Lastly, researchers can analyze the possibilities when it comes to interracial interactions and performance on the Wisconsin sorting task further. Some tasks may require more concentration than other tasks. Researchers can take this study and bring it to just about any direction of research to further the research in flexible thinking and interracial interactions.

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